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NISSAN FRONTIER

MODEL D40 SERIES

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QUICK REFERENCE INDEX

A GENERAL INFORMATION
B ENGINE
C HYBRID
D TRANSMISSION & DRIVE-LINE
E SUSPENSION
F BRAKES
G STEERING
H RESTRAINTS
I VENTILATION, HEATER & AIR CONDITIONER
J BODY INTERIOR
K BODY EXTERIOR, DOORS, ROOF & VEHICLE SECURITY
L DRIVER CONTROLS
M ELECTRICAL & POWER CONTROL
N DRIVER INFORMATION & MULTIMEDIA
O CRUISE CONTROL
P MAINTENANCE

GI General Information
EM Engine Mechanical
LU Engine Lubrication System
CO Engine Cooling System
EC Engine Control System
FL Fuel System
EX Exhaust System
STR Starting System
ACC Accelerator Control System
HBC Hybrid Control System
HBB Hybrid Battery System
CL Clutch
TM Transaxle & Transmission
DLN Driveline
FAX Front Axle
RAX Rear Axle
FSU Front Suspension
RSU Rear Suspension
SCS Suspension Control System
WT Road Wheels & Tires
BR Brake System
PB Parking Brake System
BRC Brake Control System
ST Steering System
STC Steering Control System
SB Seat Belt
SBC Seat Belt Control System
SR SRS Airbag
SRC SRS Airbag Control System
VTL Ventilation System
HA Heater & Air Conditioning System
HAC Heater & Air Conditioning Control System
INT Interior
IP Instrument Panel
SE Seat
ADP Autodrive Positioner System
AP Adjustable Pedals
DLK Door & Lock
SEC Security Control System
GW Glass & Window System
PWC Power Window Control System
RF Roof
EXT Exterior
BRM Body Repair Manual
MIR Mirrors
EXL Exterior Lighting System
INL Interior Lighting System
WW Wiper & Washer
DEF Defogger
HRN Horn
PWO Power Outlet
BCS Body Control System
LAN LAN System
PCS Power Control System
CHG Charging System
PG Power Supply, Ground & Circuit Elements
MWI Meter, Warning Lamp & Indicator
WCS Warning Chime System
SN Sonar System
AV Audio, Visual & Navigation System
CCS Cruise Control System
MA Maintenance

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

FOREWORD

This manual contains maintenance and repair procedure for the 2011 NISSAN FRONTIER.

In order to assure your safety and the efficient functioning of the vehicle, this manual should be read thoroughly. It is especially important that the PRECAUTIONS in the GI section be completely understood before starting any repair task.

All information in this manual is based on the latest product information at the time of publication. The right is reserved to make changes in specifications and methods at any time without notice.

IMPORTANT SAFETY NOTICE

The proper performance of service is essential for both the safety of the technician and the efficient functioning of the vehicle.

The service methods in this Service Manual are described in such a manner that the service may be performed safely and accurately. Service varies with the procedures used, the skills of the technician and the tools and parts available. Accordingly, anyone using service procedures, tools or parts which are not specifically recommended by NISSAN must first be completely satisfied that neither personal safety nor the vehicle's safety will be jeopardized by the service method selected.



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Please describe any Service Manual issues or problems in detail:

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QUICK REFERENCE CHART: FRONTIER

Engine Tune-up Data: QR25DE

INFOID:000000006836009

GENERAL SPECIFICATIONS

Cylinder arrangement		In-line 4
Displacement	cm ³ (cu in)	2,488 (151.82)
Bore and stroke	mm (in)	89.0 x 100.0 (3.504 x 3.937)
Valve arrangement		DOHC
Firing order		1-3-4-2
Number of piston rings	Compression	2
	Oil	1
Compression ratio		9.5
Compression pressure kPa (kg/cm ² , psi) / 250 rpm	Standard	1,304 (13.3, 189)
	Minimum	1,108 (11.3, 161)
	Differential limit between cylinders	100 (1.0, 14)

DRIVE BELT

Tension of drive belt	Auto adjustment by auto-tensioner
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SPARK PLUG

Make	NGK
Standard type*	PLZKAR6A-11
Gap (nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information

Engine Tune-up Data: VQ40DE

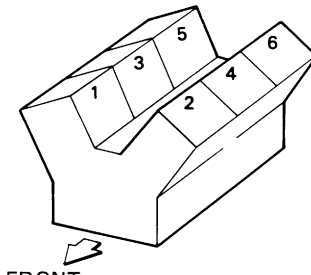
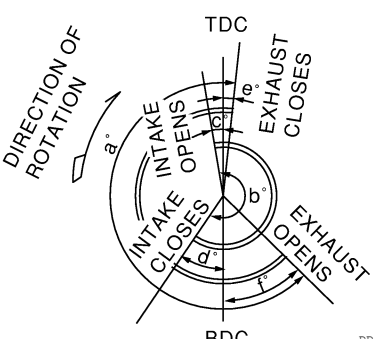
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GENERAL SPECIFICATIONS

Cylinder arrangement		V-6
Displacement	cm ³ (cu in)	3,954 (241.30)
Bore and stroke	mm (in)	95.5 × 92.0 (3.76 × 3.622)
Valve arrangement		DOHC
Firing order		1-2-3-4-5-6
Number of piston rings	Compression	2
	Oil	1
Number of main bearings		4
Compression ratio		9.7
Compression pressure kPa (kg/cm ² , psi)/300 rpm	Standard	1,275 (13.0, 185)
	Minimum	981 (10.0, 142)
	Differential limit between cylinders	98 (1.0, 14)

QUICK REFERENCE CHART: FRONTIER

2011

Cylinder number	 SEM713A
Valve timing (Intake valve timing control - "OFF")	 PBIC0187E

Unit: degree

a	b	c	d	e	f
244	240	-4	64	6	58

DRIVE BELT

Tension of drive belts	Auto adjustment by auto tensioner
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SPARK PLUG

Make	NGK
Standard type*	DILFR5A-11
Gap (nominal)	1.1 mm (0.043 in)

*: Always check with the Parts Department for the latest parts information

Front Wheel Alignment (Unladen*1)*6

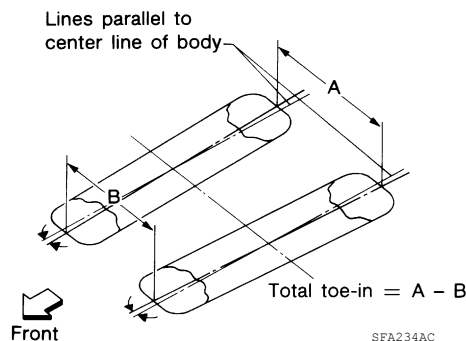
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Drive type		2WD	4WD
Camber Degree minute (decimal degree)	Minimum	-0° 30' (-0.50°)	-0° 15' (-0.25°)
	Nominal	0° 15' (0.25°)	0° 30' (0.50°)
	Maximum	1° 0' (1.00°)	1° 15' (1.25°)
	Cross camber	0° 45' (0.75°) or less	0° 45' (0.75°) or less
Caster Degree minute (decimal degree)	Minimum	2° 15' (2.25°)	2° 0' (2.00°)
	Nominal	3° 0' (3.00°)	2° 45' (2.75°)
	Maximum	3° 45' (3.75°)	3° 30' (3.50°)
	Cross caster	0° 45' (0.75°) or less	0° 45' (0.75°) or less
Kingpin inclination Degree minute (decimal degree)	Nominal	13° 0' (13.00°)	12° 45' (12.75°)

QUICK REFERENCE CHART: FRONTIER

2011

Drive type	2WD	4WD
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Total toe-in	Distance (A - B)	Minimum	In 1.2 mm (0.05 in)	
		Nominal	In 3.2 mm (0.12 in)	
		Maximum	In 5.2 mm (0.20 in)	
	Angle Degree minute (Decimal degree)	Minimum	In 0° 4' 48" (0.08°)	
		Nominal	In 0° 14' 24" (0.24°)	
		Maximum	In 0° 24' (0.40°)	
Wheel turning angle (full turn)	Inside Degree minute (Decimal degree)	33° 26' - 35° 26' *2 (33.43° - 35.43°)		33° 36' - 35° 36' *4 (33.60° - 35.60°)
	Outside Degree minute (Decimal degree)	29° 22' - 31° 22' *3 (29.37° - 31.37°)		29° 44' - 31° 44' *5 (29.73° - 31.73°)

*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

*2: Target value 35° 26' (35.43°)

*3: Target value 31° 22' (31.37°)

*4: Target value 35° 36' (35.60°)

*5: Target value 31° 44' (31.73°)

*6: Some vehicles may be equipped with straight (non-adjustable) lower link bolts and washers. In order to adjust camber and caster on these vehicles, first replace the lower link bolts and washers with adjustable (cam) bolts and washers.

General Specification (Rear)

INFOID:000000006836005

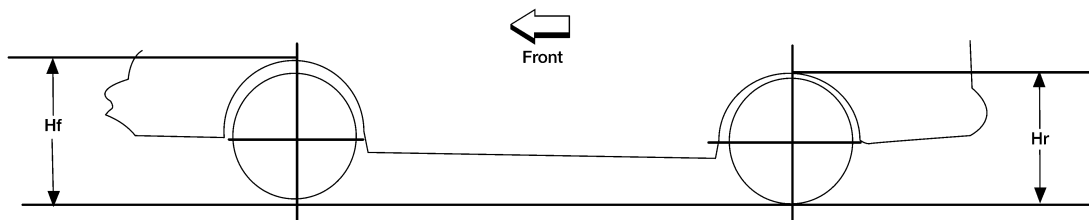
Suspension type	Rigid axle with semi-elliptic leaf springs
Shock absorber type	Double-acting hydraulic

Wheelarch Height (Unladen*¹)

INFOID:000000006836007

King Cab

Unit: mm (in)



LEIA0085E

Drive type	2WD				4WD	
Engine type	QR25DE		VQ40DE			
Tire size	P235/75R15	P265/70R16	P265/70R16	P265/75R16	P265/70R16	P265/75R16

QUICK REFERENCE CHART: FRONTIER

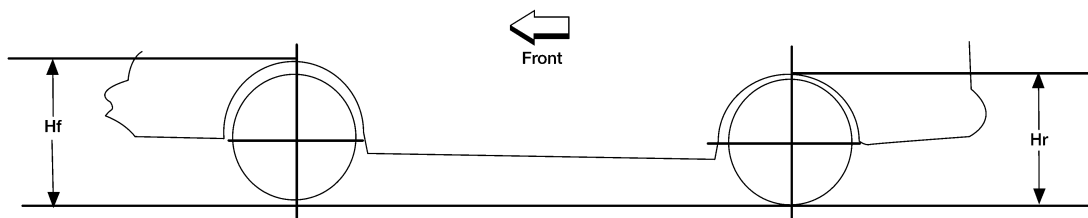
2011

Front wheelarch height (Hf)	850 (33.46)	865 (34.06)	868 (34.17)	880 (34.65)	881 (34.68)	893 (35.16)
Rear wheelarch height (Hr)	878 (34.57)	887 (34.92)	895 (35.24)	907 (35.71)	904 (35.59)	917 (36.10)

*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

Crew Cab

Unit: mm (in)



LEIA0085E

Engine type	VQ40DE									
Drive type	2WD					4WD				
Tire size	P265/70R16		P265/75R16	P265/60R18		P265/70R16		P265/75R16	P265/60R18	
Wheel base	Short	Long	Short	Short	Long	Short	Long	Short	Short	Long
Front wheelarch height (Hf)	867 (34.13)	870 (34.25)	879 (34.61)	866 (34.09)	869 (34.21)	879 (34.61)	882 (34.72)	891 (35.08)	879 (34.61)	882 (34.72)
Rear wheelarch height (Hr)	892 (35.12)	892 (35.12)	904 (35.59)	892 (35.12)	892 (35.12)	905 (35.63)	902 (35.51)	918 (36.14)	905 (35.63)	902 (35.51)

*1: Fuel, radiator coolant and engine oil full. Spare tire, jack, hand tools and mats in designated positions.

Brake Specifications

INFOID:0000000006836003

Unit: mm (in)

Engine Type		QR25DE	VQ40DE
Front brake	Brake model	CLZ33VA	
	Rotor outer diameter × thickness	283 × 28 (11.142 × 1.102)	296 × 28 (11.654 × 1.102)
	Pad Length × width × thickness	140 × 50.5 × 10 (5.51 × 1.99 × 0.39)	
	Cylinder bore diameter (each)	46.4 (1.83)	
Rear brake	Brake model	CLZ14VA	
	Rotor outer diameter × thickness	286 × 18 (11.260 × 0.709)	
	Pad length × width × thickness	87.6 × 35.5 × 11.0 (3.449 × 1.398 × 0.433)	
	Cylinder bore diameter	38.1 (1.50)	
Control valve	Valve model	Electric brake force distribution	
Brake booster	Booster model	C215T	
	Diaphragm diameter	215 (8.465)	

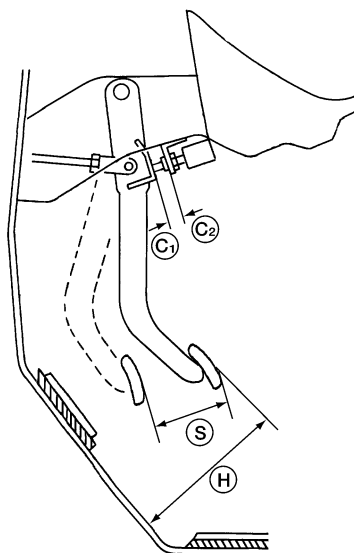
QUICK REFERENCE CHART: FRONTIER

2011

Brake Pedal

INFOID:000000006836004

Unit: mm (in)



AWFIA0557ZZ

Pedal free height (H)	M/T	174.7 +10, -0 (6.88 +0.39, -0)
	A/T	182.1 +10, -0 (7.17 +0.39, -0)
Pedal full stroke (S)		153 (6.02)
Clearance between pedal stopper and threaded end of stop lamp switch (C1) and ASCD cancel switch (C2) (if equipped)		0.74 - 1.96 (0.029 - 0.077)

Front Disc Brake

INFOID:000000006836001

Unit: mm (in)

Engine type		QR25DE / VQ40DE
Brake model		CLZ33VA
Brake pad	Standard thickness (new)	10.0 (0.394)
	Repair limit thickness	2.0 (0.079)
Disc rotor	Standard thickness (new)	28.0 (1.102)
	Repair limit thickness	26.0 (1.024)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006)
	Runout limit (with it attached to the vehicle)	0.05 (0.0020)

Rear Disc Brake

INFOID:000000006836002

Unit: mm (in)

Engine type		QR25DE / VQ40DE
Brake model		CLZ14VA
Brake pad	Standard thickness (new)	11.0 (0.433)
	Repair limit thickness	2.0 (0.079)
Disc rotor	Standard thickness (new)	18.0 (0.709)
	Repair limit thickness	16.0 (0.630)
	Maximum uneven wear (measured at 8 positions)	0.015 (0.0006)

QUICK REFERENCE CHART: FRONTIER

2011

Fluids and Lubricants: USA and CANADA

INFOID:000000006835995

QR25DE

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
Fuel		80 ℓ	21 1/8 gal	17 5/8 gal
Engine oil Drain and refill	With oil filter change	4.6 ℓ	4 7/8 qt	4 qt
	Without oil filter change	4.3 ℓ	4 1/2 qt	3 3/4 qt
Dry engine (engine overhaul)		5.0 ℓ	5 1/4 qt	4 3/8 qt
Cooling system	With reservoir at MAX level	9.4 ℓ	10 qt	8 1/4 qt
Automatic transmission fluid (ATF)		10.3 ℓ	10 7/8 qt	9 1/8 qt
Manual transmission fluid (MTF) (5 M/T)		2.89 ℓ	6 1/8 pt	5 1/8 pt
Rear final drive oil	C200	1.6 ℓ	3 3/8 pt	2 7/8 pt
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt
Brake and clutch fluids		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1 1/4 gal	1 gal
Air conditioning system refrigerant		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
Air conditioning system oil		180 m ℓ	6.1 fl oz	6.3 fl oz

VQ40DE

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
Fuel		80 ℓ	21 1/8 gal	17 5/8 gal
Engine oil Drain and refill	With oil filter change	5.1 ℓ	5 3/8 qt	4 1/2 qt
	Without oil filter change	4.8 ℓ	5 1/8 qt	4 1/4 qt
Dry engine (engine overhaul)		6.3 ℓ	6 5/8 qt	5 1/2 qt
Cooling system	With reservoir at MAX level	10.2 ℓ	10 3/4 qt	9 qt
Automatic transmission fluid (ATF)		10.3 ℓ	10 7/8 qt	9 1/8 qt
Manual transmission fluid (MTF) (6 M/T)	2WD	3.98 ℓ	8 3/8 pt	7 pt
	4WD	4.18 ℓ	8 7/8 pt	7 3/8 pt
Rear final drive oil	C200	1.6 ℓ	3 3/8 pt	2 7/8 pt
	M226	2.01 ℓ	4 1/4 pt	3 1/2 pt
Transfer fluid	TX15B	2.0 ℓ	2 1/8 qt	1 3/4 qt
Front final drive oil		0.85 ℓ	1 3/4 pt	1 1/2 pt
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt
Brake and clutch fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1-1/4 gal	1 gal

QUICK REFERENCE CHART: FRONTIER

2011

Description	Capacity (Approximate)		
	Metric	US measure	Imp measure
A/C system refrigerant	0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
A/C system oil	180 mℓ	6.1 fl oz	6.3 fl oz

Fluids and Lubricants: For MEXICO

INFOID:000000006835998

VQ40DE

Description		Capacity (Approximate)		
		Metric	US measure	Imp measure
Fuel		80 ℓ	21 1/8 gal	17 5/8 gal
Engine oil Drain and refill	With oil filter change	5.1 ℓ	5 3/8 qt	4 1/2 qt
	Without oil filter change	4.8 ℓ	5 1/8 qt	4 1/4 qt
Dry engine (engine overhaul)		6.3 ℓ	6 5/8 qt	5 1/2 qt
Cooling system (with reservoir at "MAX" level)		10.2 ℓ	10 3/4 qt	9 qt
Automatic transmission fluid (ATF)		10.3 ℓ	10 7/8 qt	9 1/8 qt
Rear final drive oil		2.01 ℓ	4 1/4 pt	3 1/2 pt
Transfer fluid		2.0 ℓ	2 1/8 qt	1 3/4 qt
Front final drive oil		0.85 ℓ	1 3/4 pt	1 1/2 pt
Power steering fluid (PSF)		1.0 ℓ	2 1/8 pt	1 3/4 pt
Brake fluid		—	—	—
Multi-purpose grease		—	—	—
Windshield washer fluid		4.5 ℓ	1 1/4 gal	1 gal
A/C system refrigerant		0.70 ± 0.05 kg	1.54 ± 0.11 lb	1.54 ± 0.11 lb
A/C system oil		180 mℓ	6.1 fl oz	6.3 fl oz